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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/935,939	08/23/2001	Robert Edward Galbraith	IBM / 67DV1	1833

7590 06/12/2002

WOOD, HERRON & EVANS, L.L.P.
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EXAMINER

PEUGH, BRIAN R

ART UNIT	PAPER NUMBER
2186	

DATE MAILED: 06/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	<i>[Signature]</i>
	09/935,939	GALBRAITH ET AL.	
	Examiner Brian R. Peugh	Art Unit 2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 23 August 2001.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 21-30 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 21-25 and 30 is/are rejected.

7) Claim(s) 26-29 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. _____.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.

4) Interview Summary (PTO-413) Paper No(s). _____.

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____.

DETAILED ACTION

Specification

Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119(e) or 120 as follows:

An application in which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) in the first sentence of the specification or in an application data sheet (37 CFR 1.78(a)(2) and (a)(5)).

Claim Objections

Claim 22 objected to because of the following informalities: the phrase "where copies data from said direct access storage device" is awkward. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 23 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 23 recites "the removal of removed cache memory". The Examiner is unclear as to what the intended meaning of the phase is meant to be, and how removed memory can still be removed.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 21-24 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by McNutt et al. (US# 5,649,153).

Regarding claim 21, McNutt et al. teaches a DASD caching management system. A cache (205) stores data pulled from the DASD drives (209). A cache directory (219) attached to the cache is used to detail what data has been read into the cache from the DASD drives, such that the directory maintains a listing of where the data is stored in the cache (col. 3, lines 51-53 & 59-62). Upon a cache read hit, data is sent from the cache to the CPU (111) (requestor). Upon a cache miss, data is read from a DASD into the cache (col. 4, lines 62-65). As data is added and removed from the cache, the amount of cache space available inherently alters, or affects, the number of data listings in the cache directory.

Regarding claims 22 and 23, when data is removed from the cache, the cache directory removes its associated directory listing. Thus, the new directory listing would contain fewer directory entries and portray an even greater amount of cache space that is available for use. The opposite would occur when new data is added to the cache, in that the new directory listing would contain fewer available entries and the cache itself would have less space for data storage.

These operations are inherent to any caching system. Should data need to be pulled from a DASD drive, the controller (203) checks the directory for available space for the data to be placed into the cache.

Regarding claim 24, the caching system of McNutt et al. teaches monitoring data accesses to data stored in the cache (col. 4, lines 56-58).

Regarding claim 30, the caching system of McNutt et al. also teaches monitoring data accesses to data not currently stored in the cache (col. 5, lines 24-55).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over McNutt et al. (US# 5,649,153) and Mayfield (US# 5,737,565).

5. The difference between the claimed subject matter and McNutt et al., disclosed *supra*, is that the claim recites that monitoring data accesses is done in connection with and LRU queue. Mayfield teaches monitoring a sequence of cache misses, whereupon that an LRU filter queue (502) is used in conjunction with the monitoring step (abs.; Figure 5). Therefore it would have been obvious to one of ordinary skill in the art having

the teachings of McNutt et al. and Mayfield before him at the time the invention was made to modify the caching system of McNutt et al. to include the LRU scheme of Mayfield because then items which receive low hit-ratios can be removed and replaced with items from the LRU cache, as taught by Mayfield.

Allowable Subject Matter

6. Claims 26-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art reference teaches similar statistical cache measurement.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Peugh whose telephone number is 703-306-5843. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm. The examiner can also be reached on alternate Friday's.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew M. Kim, can be reached on (703) 305-3821. The fax phone number for the organization where this application or proceeding is assigned is 703-746-7239.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

MMK/BRP
MMK/BRP
June 10, 2002

Matthew Kim
MATTHEW KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100